Eco-Digital Storytellers:
Environmental Action Through Geospatial and Media Arts Technology

Nicole Freidenfelds[1] | Todd Campbell[2] | Cary Chadwick[3,4] | Laura Cisneros[1,5] | Dave Dickson[3,4] | Heather Elliott-Famularo[6] | Anna Lindemann[6] | Laurel Pehmoeller[6] | Jonathan Simmons[2]

Motivation

Problem

Environmental challenges disproportionately impact under-resourced communities and communities of color[1]. While the burden of developing and implementing solutions should not fall on those communities alone, empowering and amplifying the voices, knowledge, and experiences of community members are critical to holistic and equitable action.
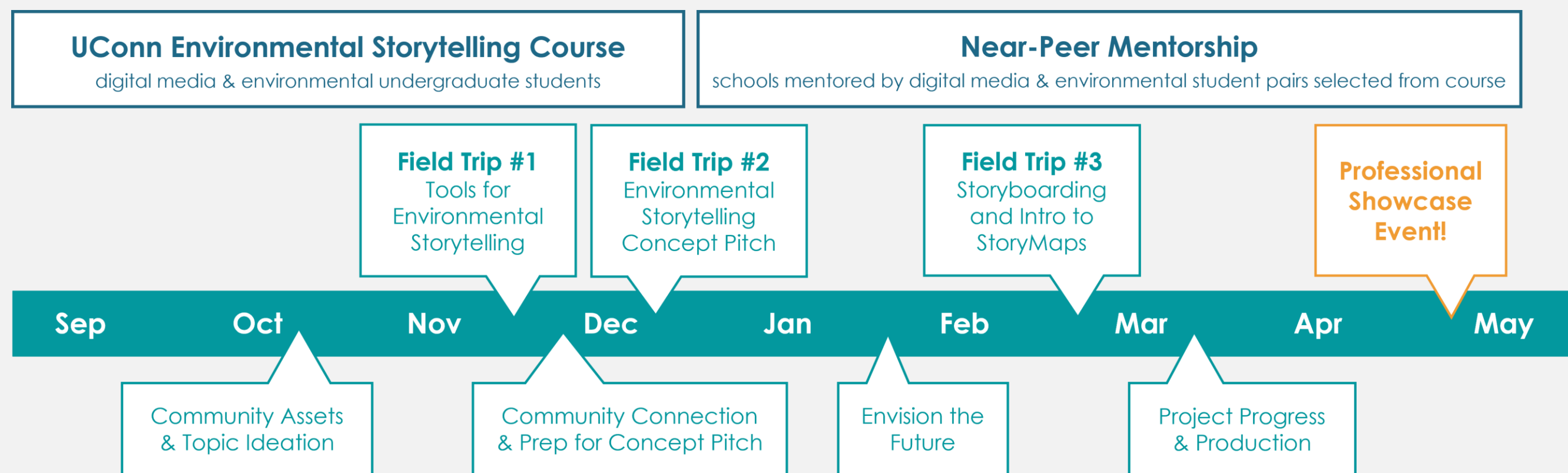
Our Project

We developed an **E-STEAM** (Environmental, Science, Technology, Engineering, Arts, Mathematics) **approach** to engage high school teams from environmental justice communities in creative environmental storytelling and advocacy with the support of near-peer mentors and community partners.

Eco-Digital Storytellers Program Model

Goal:
Engage collaborative teams of lifelong learners (high school classes, community partners, and multidisciplinary University of Connecticut faculty and undergraduate students) to create StoryMaps[2] that:

➢ **Advocate for a possible action to address a socio-environmental challenge or opportunity in their community**

➢ **Use interactive and multimedia storytelling to envision an environmental future and engage local decision makers**

UConn Environmental Storytelling Course	Near-Peer Mentorship
digital media & environmental undergraduate students	schools mentored by digital media & environmental student pairs selected from course

	Field Trip #1 Tools for Environmental Storytelling	Field Trip #2 Environmental Storytelling Concept Pitch	Field Trip #3 Storyboarding and Intro to StoryMaps	Professional Showcase Event!
Sep Oct Nov Dec Jan Feb Mar Apr May				

- Community Assets & Topic Ideation
- Community Connection & Prep for Concept Pitch
- Envision the Future
- Project Progress & Production

Resources & Guides
- Digital media technology
- Environmental storytelling
- Mapping and StoryMaps
- EDS Project Guide

Multi-Layered Mentorship

Participants — Network of Support
- SCHOOL PODS
- NEAR-PEER MENTORS
- COMMUNITY PARTNERS
- UCONN FACULTY
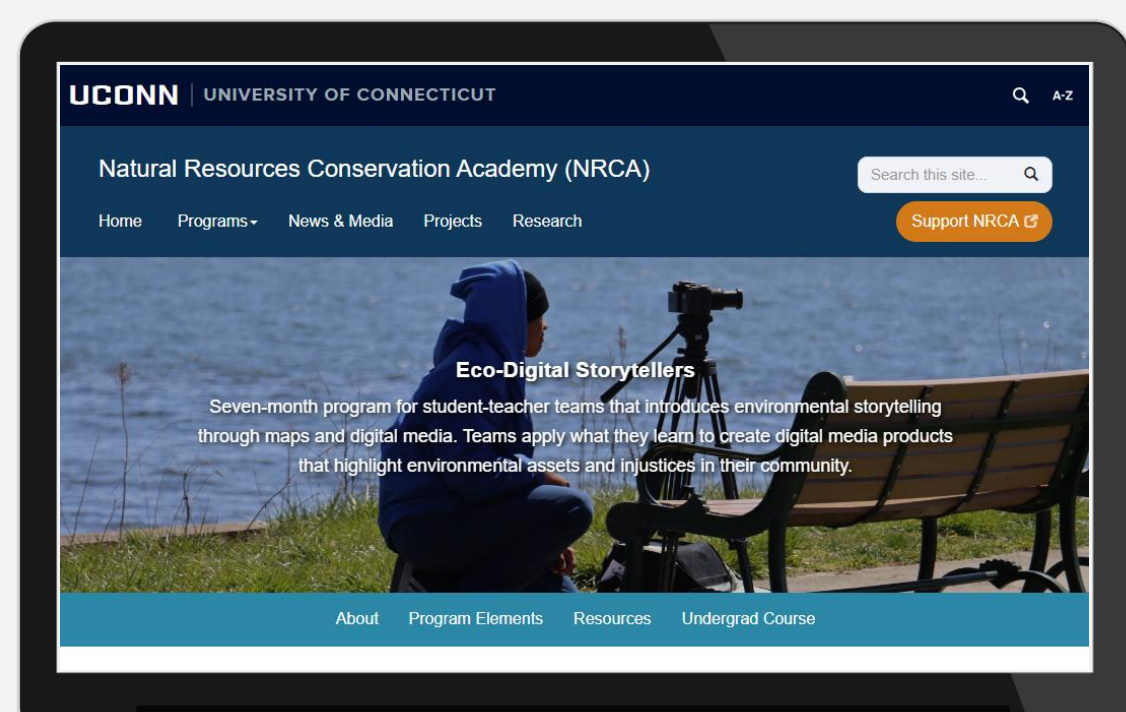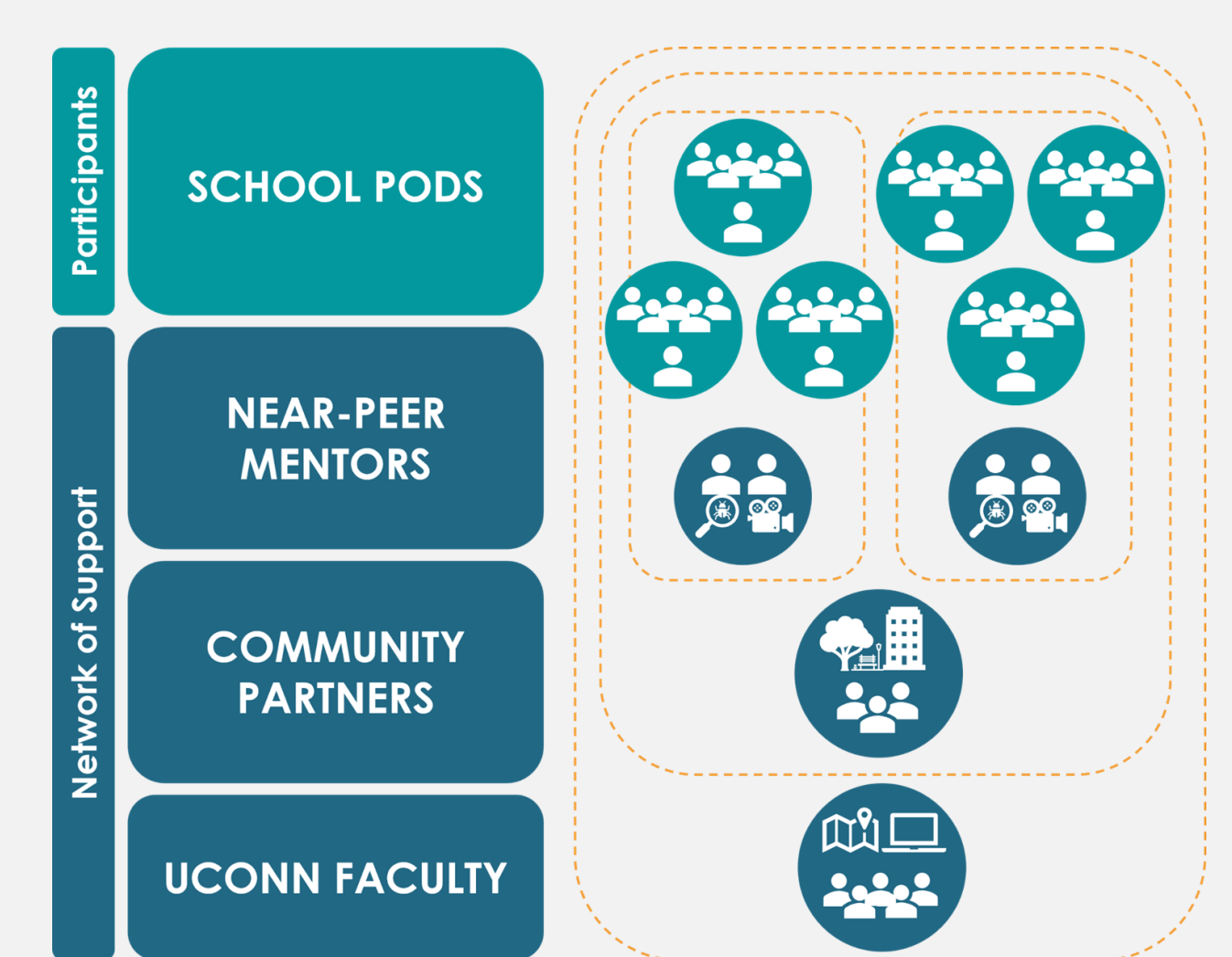
check out the EDS website at:
nrca.uconn.edu/eds

Eco-Digital Storytellers (EDS) Participant Projects & Showcase

Map of **Environmental Justice Index** values for CT communities.

Scores are based on 51 indicators from four categories: **Potential Pollution Sources, Potential Pollution Exposure, Socioeconomic Factors,** and **Health Sensitivity.**

Higher values (dark blue) identify the **most impacted communities** (i.e., higher pollution risk and more vulnerable populations).

A.I. Prince Technical High School
- Bioscience & Environmental Technology Class
- Community Partners:
  ➢ KNOX Hartford
  ➢ Hartford Land Bank

It's Alive! The Soil Beneath Our Feet
- Promoting care of urban soils

Hartford Food (In)Justice
- Examining local access to healthy produce in grocery stores, community gardens, and farmer's markets

view all the stories at
s.uconn.edu/eds-stories
or scan the QR code

It's Alive! The World Beneath Our Feet
Caring for Our Contemporary Soils in Hartford, CT

Hartford - Food (In)Justice
Reclaiming Food Sovereignty in Connecticut's Capital City

West Haven High School
- Journalism & Digital Media Classes
- Community Partners:
  ➢ West Haven Parks & Recreation
  ➢ Land Trust of West Haven

Shoreline Saviors
- Boardwalk resilience and eco-restoration project focused on four pillars:
  ➢ Education
  ➢ Accessibility
  ➢ Engagement with nature
  ➢ Improving green spaces

Shoreline Saviors
West Haven Shoreline Resilience and Eco-Restoration Project

Greater Hartford Academy of the Arts
- Digital Media Class
- Community Partner:
  ➢ Riverfront Recapture

Charter Oak Landing
- Advocating for improved park accessibility, such as multi-lingual signage, crosswalks, and wheelchair ramps
- Promoting community engagement via murals and art

Charter Oak Landing
Reconnecting Hartford community members with the Connecticut River

Panel of young professionals in digital media, environmental, and GIS fields:

Paula Guerrero
Multimedia Specialist at Husky Nutrition and Sport

Andrew Kinlock
GIS Coordinator for the town of Hamden, CT

Jayson Velazquez
Climate & Energy Justice Policy Associate at Acadia Center

Showcase Event
hosted at the
Connecticut Science Center

Research Approach

Research Focus

Determine the impacts of the EDS workshops and environmental storytelling projects on students' E-STEAM identity and career interests

What are the expansive interest-driven E-STEAM identity authoring experiences of school pods — specifically:
- the **interests** of the participants;
- the **performances** in which participants engage;
- the ways in which **competencies** are communicated; and
- how **recognition** unfolds — in relation to near-peer mentoring, digital media storytelling, and geospatial technologies?

Data Collection

- Pre-/post-**surveys** (STEM Career Interest and E-STEAM Identity Survey)
- Four **observations** of, and eight **interviews** with, students at one school
- Teacher **focus group** after project showcase

Acknowledgements & References

1. EPA. 2021. Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. U.S. Environmental Protection Agency, EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report
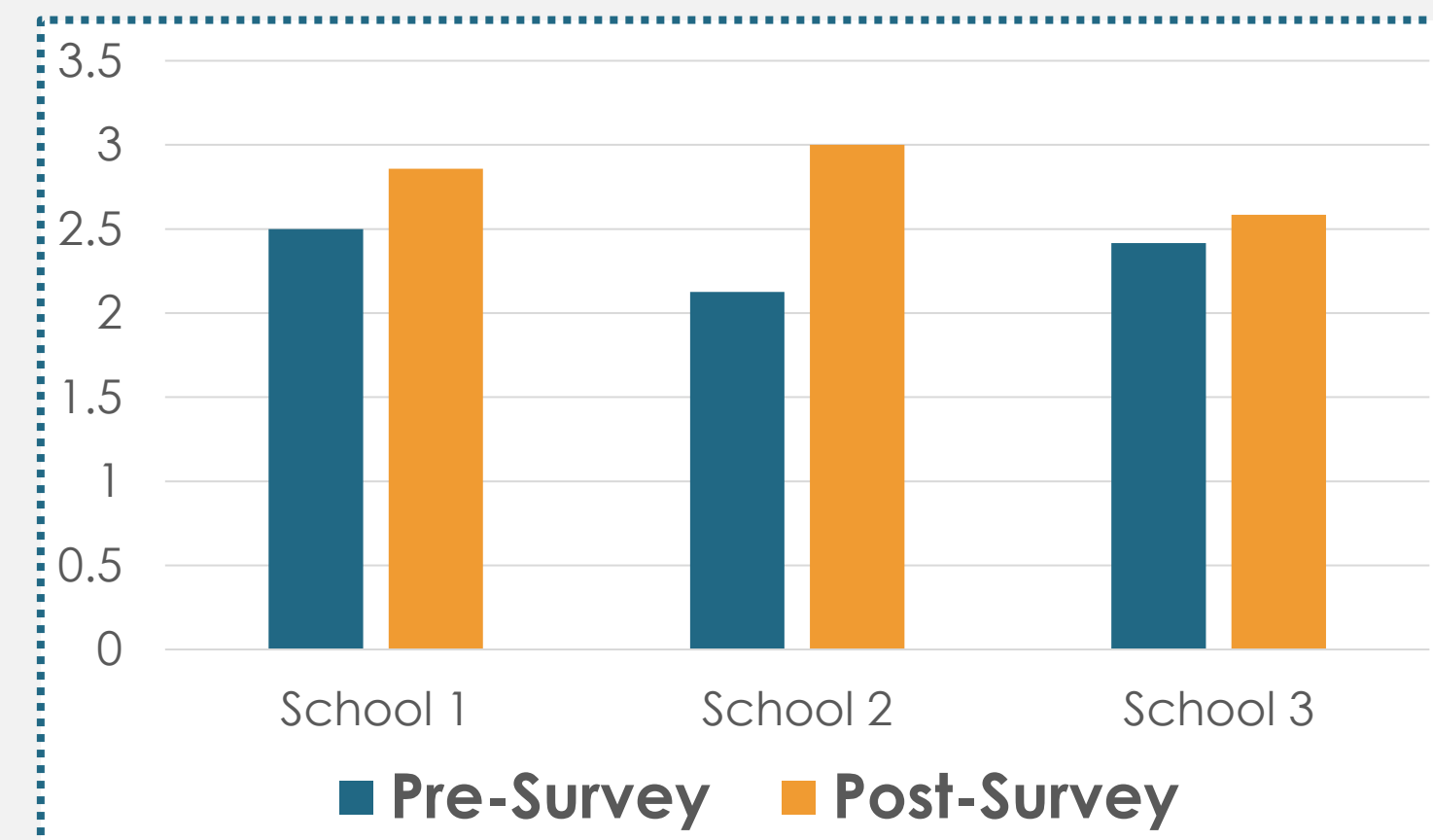2. What are ArcGIS StoryMaps? https://storymaps.arcgis.com/stories/9a500acb526f4be8b0a3c66ffa8e53fa

Preliminary Results

Interest & Role Models

- **Increases in** each **E-STEAM identity** domain **relating to role models,** including science and math careers
- Mixed results suggest a **need for deeper exploration of student's perception** of what a role model is and **ways to connect students to E-STEAM role models**

Acquisition of New Knowledge & Skills

- **Increases in** pre-post survey items relating to individuals **under-standing of geospatial** (mapping) **concepts**
- **Increases in** students' **self-recognition of their ability to use technology tools**
- **Differences at the individual school level emphasize the importance of context** and need for 1) better understanding the unique elements of each community and 2) highlighting the ways that each community has historically engaged with science

- Pre-Survey
- Post-Survey
(School 1, School 2, School 3)

"I am aware of geospatial technologies' potential in illustrating conservation concepts"